

Original Research Report

Socio-Economic Characteristics of Infants and Nursing Mothers: Implication for Breastfeeding Refusal Attitudes and Reasons for Re- Breastfeeding in Nsukka urban, Nigeria

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Abstract: The study examined socio-economic characteristics of nursing mothers and infants as they related to breastfeeding refusal attitudes and reasons for re-breastfeeding in Nsukka urban of Enugu state. Random sampling technique was used to select 200 out of a population of 2,265 nursing mothers whose infants had refused breastfeeding. A structured questionnaire was used for data collection. Results showed that all the infants who were mostly females had refused breastfeeding at or before twelve months of age before being re-breast fed. The nursing mothers (61%) were between 25-29 years, 75% had secondary and up to tertiary levels of education. Their average household size was 4 persons and 89% of them were living below the global poverty line of two dollars a day. Being restless and crying once breast was in their mouths were among the infants' breastfeeding refusal attitudes. Approaches adopted by nursing mothers in re-breastfeeding their infants were dealing with immediate and remote causes that included improper holding of breasts and nasal congestion with significant influence of nursing mothers' educational qualifications. Nursing mothers' reasons for re-breastfeeding were for proper emotional, physical and cognitive development of their infants which were not significantly influenced by infants' gender. Inclusion of skills in proper holding of breasts while breastfeeding during antenatal clinics and further research were recommended.

Keywords: Breastfeeding Refusal, Infants, Nursing Mothers, Socio-economic

1. Introduction

Breastfeeding is as old as the human race and an ideal source of the right quantity and quality of nutrients for infants within their first few months of life. Through breastfeeding nursing mothers make the most valuable investment on their infants' nutritional health. Abaribe and Dike (2021) adduced that breastfeeding is means of laying foundation for healthy living across lifespan. Unfortunately, continued the authors, many infants are short of recommended optimal breastfeeding of six months of exclusive breastfeeding in addition to two years of breast feeding with complimentary foods (United States Breastfeeding Committee, USBC, 2002). In this context, breastfeeding refusal occurs when an under - six months infant engages in self - stoppage of breast feeding. Breast feeding refusal could show off when an infant constantly fuses at breast or refuses to attach and suck breast while crying. Carter (2019) explained that taking a long time to feed, coughing and sleeping while breastfeeding could be attitudes of infants that indicate breastfeeding refusal which can be influenced by some underlying socio-economic factors. Socio-economic factors are the interactions of gender, education, income, occupation among others in the categorization of people into high, middle and low social standings that often influence people's behaviour. Michou and Costerelli (2021) noted that socio-economic variables such as age, educational level, and occupational engagement of mothers have influence on ways they relate to others especially their infants who had refused breastfeeding of which there could be many causes. The causes of infants' breastfeeding refusal according to Bjarnadottir (2020) and Victora et al., (2016) include nasal congestion, distractions, digestive tract or reflux disease, allergies, surgery, teething problems, tongue tie, complications from immunizations or vaccination, and nipple confusion. Implicit is that these challenges can make infants refuse breastfeeding refusal, thereby making nursing mothers to seek reversal using problem solving approaches at their disposal.

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Problem solving approach is a technique of using a systematic process in addressing and dealing with immediate and remote causes of problems in proffering solutions to them (Indeed Editorial Board, 2021). A remote problem is an underlining, complex cause of a problem, which had been before the immediate problem causative factor (Picomoto, 2016). Unknown are problem solving approaches adopted by nursing mothers in Nsukka in getting their infants re-breastfeed after refusal in addition to how their levels of education and the gender of their infants influence their actions. Lee and Marwell (2013) noted that most nursing mothers invest more on infants of their preferred gender. Thus the value nursing mothers attach on the gender of their infants could reflect on their perceived consequences of sub-optimal breastfeeding of infants, hence their reasons for re-breastfeeding which also need to be investigated. There are many consequences of sub-optimal breastfeeding of infants such as malnutrition, repeated infections and associated diseases among others (Iffa & Serbesa 2018; Olatona & Odeyemi, 2012). UNICEF (2011a) added diarrhea, poor hygiene and health complications including poor physical, emotional and cognitive developments especially among infants from developing countries. Still buttressing the consequences of sub-optimal breast feeding, Tette et al. (2016) linked breastfeed refusal to high mortality rate. On a global level, Black et al. (2013) posited that sub-optimal breast feeding accounts for approximately 12% deaths annually.

Apart from breastfeeding refusal impacting negatively on infants, nursing mothers are equally affected. Bjarnadottir (2020), UNICEF (2011b) and WHO (2019) noted that nursing mothers face challenges of engorged breasts, breast cancer, uterine cyst, cardiovascular diseases, depression, excessive weight gain, and high chances of having unplanned pregnancy as a result of their infants'

sub-optimal breastfeeding. This is in addition to spending more time and money including more stress feeding infants with formula foods relative to breastfeeding. Thus, reasons for re-breasting infants after refusal to breastfeed could be to abate some of these challenges which this study investigated. The study has a role to play in the promotion of indigenous knowledge and practices in infants' breastfeeding welfare in the Nsukka area of Nigeria. Understanding of the socio-economic dynamics that influence infants' re-breasting actions of nursing mothers will invariably promote policy initiatives and drive actions for posterity. The widely acknowledged clamour to optimally breastfeed infants due to its benefits according to Osuorah (2016) also stands this study justified. Infants and mothers would benefit through promotion of their optimal breastfeeding, hence, reduction in infant and maternal mortality including improvement in their physical, emotional and cognitive development. Home economists, health educators and medical practitioners would apply recommendations of the research in beefing up breastfeeding knowledge gaps and as a result contribute to production of healthier manpower in a long run.

1.1. Statement of Problem

Knowledge of infants' breast feeding refusal attitude remains relatively under researched especially as it interplays with the socio-economic variables of both infants and their nursing mothers. Implicit is the possible misinterpretation of the infants' breast feeding refusal clues, which could lead to negative consequences. Misinterpretation of infants' breast feeding refusal attitudes could lead to wrong diagnosis and consequent wrong treatment hence increase in infants' mortality which Olatona and Odeyemi (2012) noted was 75 percent per 1,000 live births in Nigeria. Where death is not the case, infants' early breast feeding refusal could have other consequences for the infants and their mothers. Victora et al., (2016) noted that nursing mothers who sub-optimally breastfeed their infants have problems of depression, higher risk of cancer and uterine cyst, early return of menstruation and conception including poor shrinking of uterus after delivery. Dealing with the challenges would require not only probing into the infants' breast feeding refusal attitudes but also their mothers approaches in getting them to re-breast feed and reasons thereof. By doing so, the study will be bringing aspects of indigenous knowledge of infants' breast feeding practices of Nsukka women to the fore for posterity. The study will equally contribute to stemming down mortality rate that characterizes states living in poverty of which Nigeria is one. World Data Laboratory (2019) had noted that six persons slip every minute into the global extreme poverty benchmark of living below 2 dollars a day in Nigeria.

1.2. Purpose of the Study

The major purpose of the study was to examine socio-economic characteristics of infants and nursing mothers and their implication for breast feeding refusal attitudes and reasons for re-breastfeeding in Nsukka urban. Specifically, the study ascertained:

- (a) socio-economic characteristics of infants that refused breastfeeding.
- (b) socio- economic characteristics of nursing mothers whose infants had refused breastfeeding.
- (c) attitudes exhibited by infants that indicated their breastfeeding refusal.
- (d) approaches adopted by nursing mothers in re-breastfeeding their infants after refusal to breast feed in Nsukka.
- (e) reasons for re-breastfeeding infants after refusal by their nursing mothers in Nsukka

1.3. Research Questions

- (a) What are major factors responsible for insecurity in Nigeria?
- (b) What are the major factors responsible for inflation in Nigeria?

- (c) What are the consequences of insecurity on the people of Enugu State?
- (d) What are the consequences of inflation on the people of Enugu state?
- (e) How will Home Economics help to manage insecurity and inflation challenges in Enugu State?

1.4. Research Hypotheses

- (a) There is no significant difference based on level of education of nursing mothers on their adopted approaches in re-breastfeeding their infants after breastfeeding refusal.
- (b) There is no significant influence based on gender of the infants on their nursing Mothers' reasons for re-breastfeeding them after their breastfeeding refusal

2. Materials and Methods

2.1. Design for the Study

The study adopted descriptive survey design. The design was considered suitable because it helps to study people, their attitudes, reasons for their actions and inactions among others in investigation of phenomenon under review.

2.1.1. Ethics Approval of Research

The researchers obtained oral consent from the health management board of University Medical Centre, General Hospital, Bishop Shannahan Hospital, and District Health Centre, all in Nsukka urban that were used for study after production and submission of introduction cum approval letter. The letter was issued by the academic board of Department of Home Economics and Hospitality Management Education, of University of Nigeria, Nsukka that approved the study after review. A written informed consent was obtained from all the respondents before data collection. All respondents were informed that their participation was not compulsory and that the data would be used only for research purposes.

2.2. Area of the study

The study was carried out in Nsukka urban town within Nsukka Local Government Area (LGA) in North Senatorial Zone of Enugu State in Nigeria. The LGA is one of the 17 LGAs in the state and the most populated. It has a population of 309,448 that consists of 149,418 males and 160,030 females (2006 National Population Census). Nsukka urban is home to Nigeria's foremost indigenous University of Nigeria Nsukka (UNN) and has 15 government recognized primary health care centres.

2.3. Population and Sample

Population of mothers of child bearing age (15 to 49 years) was three thousand six- hundred and sixty six (3,666) (Nsukka Health District Board, 2010). The study population comprised of all the 2,265 mothers of child bearing age that attended 15 primary health care centres in Nsukka Health District who had experienced their infants refusing to breastfeed in 2021. Many mothers in Nsukka urban are hard-working and are engaged in multiple sources of income as either their families' sole or co-bread winners. Majority of them have secondary level education and some have in addition tertiary educational level. Occupationally, few are in public service and others are in informal sector business operations and or both. The informal sector business operations are petty trading, subsistence and commercial food production, processing and storage. Most mothers are involved in domestic chores, child bearing and rearing while some are in addition care givers to older members of their families. Majority of the mothers belong to at least one self-help group through which they socialize.

Convenience sampling techniques was used to select four health centres that were; University Medical Centre, General Hospital, Bishop Shannahan Hospital and Nsukka District Health Centre for

the study out of 15 government recognized primary health care centres in the area. Random sampling techniques was used to reach 210 nursing mothers whose infants had refused breast feeding and were in antenatal and postnatal clinics in the four health institutions between May to August, 2021. Numbers of nursing mothers reached in each health centre were as follows: University Medical Centre (32), General Hospital (54), Bishop Shannahan Hospital (62), and Nsukka District Health Centre (62). After administering the questionnaire on them, two hundred of them adequately completed their questionnaire and so formed the study sample. The four primary health centres are at the center of Nsukka urban and are the most patronized and explained the reason for using them for the study.

2.4. Instrument for Data Collection and Study Procedure

The instrument for data collection was a structured questionnaire developed after literature review by the researcher. The questionnaire consisted of four sections of A to D. Section A sought information on socio-economic characteristics of infants that refused breastfeeding and that of their nursing mothers and that provided data that answered research questions 1 and 2. Four-point rating scale of: Strongly Agreed (SA), Agreed (A), Disagreed (D), Strongly Disagreed (SD), was used for sections B to D with values of 4,3,2,1 respectively that answered research questions 3 to 5. Two hypotheses were tested at 0.05 level of significance using t-test and ANOVA statistical analysis. The instrument was face validated by three experts from Department of Home Economics and Hospitality Management Education, University of Nigeria, Nsukka. The questionnaire was after validation administered to twenty nursing mothers whose infants had refused breastfeeding in antenatal and postnatal clinics in Enugu-Ezike Urban Health Centre. The women were not part of the population for the study. The overall internal consistency of the questionnaire was determined using Cronbach Alpha procedure which recorded 0.95. Enugu -Ezike Urban is second to Nsukka urban in cosmopolitan nature in Enugu North Senatorial Zone and the two towns share so many things in common.

2.5. Data Collection Technique

A total of 2010 copies of questionnaires were administered by hand. Two hundred of them were retrieved by the researcher with the help of two briefed research assistants after sixteen visits to the four health facilities at an average of 3 visits per health facility. The number of questionnaires retrieved from each of the four health facilities were as follows: University Medical Centre (32), General Hospital (50), Bishop Shannahan Hospital (60), and Nsukka District Health Centre (58) which brought the total to 200.

2.6. Data Analysis Technique

Data were analyzed using frequencies, percentages, means and standard deviations. Benchmarks for decision were 50 percentage score for frequency scores and 2.50 mean value for the rated scale. Percentage levels of 50% and above meant agreement for research questions 1 and 2. Mean scores of 2.50 and above meant agreement for research questions 3 to 5 so were deemed high and accepted and below deemed low and rejected. A t-test and an ANOVA analysis of no significance at 0.05 were carried out. Statistical package of Social Sciences (SPSS) version 2020 was used in analyzing the data.

3. Results and Discussion

3.1. Research question one: What are the socio- economic characteristics of infants that refused breast feeding in Nsukka urban?

Table 1: Frequency and Percentage Distributions of Socio-Economic Characteristics of Infants that Refused Breastfeeding

Gender	Male: 55(27.5%)				Female: 145(72.5%)		
Age at Breastfeeding Refusal	1- 3 weeks	1-3 Months	4-6 Months	7-9 Months	10-12 months		
	93(46.5%)	62(31.0%)	17(8.5%)	13(6.5%)	15(7.5%)		
The Infant's Birth Position	1 st	2 nd	3 rd	4 th	5 th	6-8 th	9 th
	80(40%)	58(29%)	39(19.5%)	15(7.5%)	7(3.5%)	0 (0%)	1(.5%)

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Table 1 show that 27.5% of them are males while 72.5% are females. The table equally shows that 46.5%, 31%, 8.5%, 6.5% and 7.5% of the infants respectively refused breastfeeding within 3 weeks, 1 to 3 months, 4 to 6 months, 7 to 9 months and 10 to 12 months of age. Finally, the table shows that 40%, 29%, 19.5%, 7.5%, 3.5%, and 0.5% of the infants are 1st, 2nd, 3rd, 4th, 5th, and 9th in their birth order positions.

3.2. Research question two: What are the socio- economic characteristics of nursing mothers whose infants had refused breastfeeding in Nsukka urban?

Table 2: Frequency and Percentage Distributions of Socio-Economic Characteristics of Nursing Mothers with Infants that Refused Breastfeeding

Average Household Size	4 persons						
Residence	Rural: 25 (12.5%)				Urban: 175 (87.5%)		
Educational Level	None	Primary	Secondary	Tertiary			
	17(8.5%)	12(6.0%)	66(33.0%)	105(52.5%)			
Marital Status	Married	Single	Widow	Divorced	11 11(5.5%)		
	172(86.0%)	5(2.5%)	12(6.0%)				
Age	18 & Below Years	19-24 Years	25-29 Years	30-34 Years	35-40 Years	41 & above Years	
	8(4%)	22(11%)	122(61%)	36(18%)	11(5.5%)	1(.5%)	
Households'	less than	30,000 –	60,000-	90,000-119,000	120,000-	151,000-	Above
Monthly Income in	29,000	59,0000	89,000	34(17 %)	150,000	180,000	181,0000
N	16 (8 %)	50(25 %)	74(37%)		8(4 %)	10(5 %)	8(4%)

The data in the above table 2 show some socio-economic characteristics of nursing mothers whose infants had refused breastfeeding. The table shows that: 4%, 11%, 61%, 18%, 5.5% and 0.5% of the nursing mothers are below 18 years, and between; 19-24, 25-29, 30-34, 35-39, and 41 years and above respectively even as 87.5% of them live in urban area of Nsukka. On an educational level, 8.5%, 6.0%, 33% and 52.5% have; no formal education, primary school, secondary school and tertiary levels of education respectively while most of them (86%) are married. The table shows that

the average household size of the nursing mothers is 4 with 87% of them living on monthly income of less than 120,000 Naira that amounts to living below poverty line of 2 dollars a day at the prevailing \$1 to 500 Naira exchange rates in Nigeria.

3.3. Research question three: What attitudes were exhibited by infants that indicated their breastfeeding refusal in Nsukka urban?

Table 3: Mean and Standard Deviations Responses of Nursing Mothers on Infants' Attitudes that Indicate Breastfeeding Refusal

S/N	Attitudes of Infants that Indicate their Breastfeeding Refusal include:	\bar{x}	SD	R
1	Being restless during breastfeeding	3.85	0.89	Agreed
2	Crying once breast is in his/her mouth	2.64	1.20	Agreed
3	Crying while breast feeding and swallowing breast milk	2.54	1.22	Agreed
4	Refusing to suck at all when breast is in his/her mouth	2.40	1.23	Disagree
5	Holding the milk in his/her mouth and spitting it off later	2.02	1.35	Disagreed
6	Taking long time to breast feed	2.00	1.30	Disagree
7	Coughing	2.04	1.22	Disagreed
8	Sleeping when breast is in the mouth	2.33	1.24	Disagreed

\bar{x} = Mean Responses; SD = Standard Deviation Responses; R = Remarks

Table 3 shows breastfeeding refusal attitudes of infants in Nsukka urban as; being restless while being breastfed (\bar{x} =2.85), crying once breast is in the mouth (\bar{x} =2.64) and crying while breastfeeding and swallowing the milk (\bar{x} =2.54). This is because each of them has mean value that is above 2.50 caught off score. The infants do not; suck at all when breasts are in their mouths (\bar{x} =2.40), hold milk in their mouths and later spit it off (\bar{x} =2.02), take long time to breastfeed (\bar{x} =2.00), cough when breast is in the mouth (\bar{x} =2.04), sleep when breast is in the mouth (\bar{x} =2.33). This is because they all have mean scores that are below 2.50. Items' standard deviations that range from 0.89 to 1.39 show moderate dispersion that indicate closeness of individual means to group mean that depicts the homogenous nature of their responses.

3.4. Research question four: What approaches did nursing mothers adopt in re-breastfeeding their infants after refusing to breastfeed in Nsukka urban?

Table 4: Mean and Standard Deviation Responses of Approaches Adopted by Nursing Mothers' in Getting their Infants Re-Breastfeed after Refusal

S/N	Nursing mothers immediately identified and addressed;	\bar{x}	SD	R
1	Improper sitting and breast positioning that caused infants to refuse breastfeeding	3.55	1.00	A
2	Distractions that caused their infants to refuse breast feeding	3.30	1.03	A
3	Their unfriendly attitudes that caused their infants to refuse breast feeding	3.50	1.00	A
	<i>Grand total of some immediate causes</i>	3.45	1.01	A
	Nursing mothers in retrospect identified and addressed;			
4	Low breast milk flow that caused their infants to refuse breast feeding	2.55	1.29	A
5	Causes of infants getting cold that made them refuse breast feeding	2.55	1.29	A
6	Causes of infants getting nasal congestion that made them to refuse breastfeeding	2.55	1.29	A
	<i>Grand total of some remote causes</i>	2.55	1.29	A
7	Nursing Mothers left their infants to resume-breastfeeding without doing anything	1.26	0.72	D

\bar{x} = Mean Responses; SD = Standard Deviation Responses; R = Remarks, A= Agreed, D = Disagreed

Table 4 shows that nursing mothers adopted two approaches of identifying and dealing with immediate causes (with grand mean of 3.45) and remote causes (with grand mean of 2.55)of

breastfeeding refusal in getting their infants to re-breastfeed after refusal. The immediate causes they identified and dealt with were; improper sitting and breast positioning while breastfeeding, distractions from the environment while breastfeeding the infants, and nursing mothers' unfriendly attitudes towards their infants. While the remote ones were; low breast milk flow, sources of catching cold and having nasal congestion by their infants. The standard deviations that range from 0.72 to 1.15 show closeness of the means that depict closeness of their responses.

3.5. Research hypothesis one: There is no significant difference based on level of education of nursing mothers on their adopted approaches in re-breastfeeding their infants after breastfeeding refusal.

Table 5: ANOVA analysis of Influence of Educational Qualification of Mothers on their Adopted Approaches in Re-breast Feeding of their Infants after Refusal to Breast Feed

	Sum of Squares	df	Mean Square	F	Sig.	Decision
Between Groups	339.107	3	113.036	3.139	.026	Significance
Within Groups	7057.213	196	36.006			
Total	7396.320	199				

Analysis of Variance (ANOVA) in Table 5 was conducted to test the influence of educational qualification of nursing mothers on the approaches they used in getting their infants to re-breast with a show of significant influence [$F(3, 196) = 3.139$; $p\text{-value} = .026$]. This is because; the $p\text{-value}$ (sig.) is less than 0.05 level of significance. The null hypothesis which says there is no significant influence of educational qualification of nursing mothers on their adopted approaches in getting infants who refused breastfeeding to re-breast feed is rejected and the alternative hypothesis accepted.

3.6. Research question five: What were the nursing mothers' reasons for re-breastfeeding their infants after breast feeding refusal in Nsukka urban?

Table 6: Mean and Standard Deviations Responses of Nursing Mothers' Reasons for Re-Breast Feeding their Infants after their Breastfeeding Refusal

S/N	Reasons for Re-Breastfeeding Infants for their Benefit bu Nursing Mothers include to;	\bar{x}	SD	R
1	Ensure greater bonding with their infants	3.89	0.380	A
2	Ensure their infants' healthy physical development	3.63	0.072	A
3	Improve their infants' cognitive development	3.23	1.038	A
	<i>Infants' Benefits Grand Mean and SD</i>	3.58	0.715	A
	Reasons for Re-Breastfeeding Infants for their Mothers' Benefit include to;			
4	Reduce risk of nursing mothers' getting pregnant	3.26	1.136	A
5	Reduce possible excessive weight gain by nursing mothers	3.31	1.003	A
6	Reduce chances of nursing mothers having depression	3.23	1.025	A
7	Reduce risk of ovarian cancer and other diseases by nursing mothers	3.48	0.961	A
	<i>Maternal Benefit's Grand mean and SD</i>	3.32	1.031	A

\bar{x} = Mean Responses; SD = Standard Deviation Responses; R = Remarks, A= Agreed, D = Disagreed

Data in table 6 show the mean ratings and standard deviations responses of nursing mothers on their reasons for re-breastfeeding their infants' after refusal to breastfeed. The data show that ensuring; more bonding ($\bar{x} = 3.89$), proper physical development ($\bar{x} = 3.63$), and improving

cognitive development ($\bar{x} = 3.23$) of their infants are their reasons. Again, reducing likelihood of occurrences of; pregnancy ($\bar{x} = 3.26$), excessive weight gain ($\bar{x} = 3.31$), occurrences of ovarian cancer and other diseases ($\bar{x} = 3.48$) and depression ($\bar{x} = 3.23$) are equally reasons nursing mothers re-breast feed their infants. The standard deviations that range from 0.072 to 1.136 show moderate dispersion of individual mean scores around the group mean, meaning that their responses are homogenous.

3.7. Research hypothesis two: There is no significant influence based on gender of the infants on their nursing Mothers' reasons for re-breastfeeding them after their breastfeeding refusal.

Table 7: t-test Analysis of no significance influence of infants' gender on their Nursing Mothers' Reasons for Re-Breastfeeding them after Breastfeeding Refusal

S/N	Item Statements	Male		Female		t	df	Sig. (2-tailed)
	Mothers' Re-Breast Feeding Reasons include to;	\bar{x}	SD	\bar{x}	SD			
1	Ensure greater bonding with their infants	3.84	.501	3.92	.323	1.345	198	-1.345
2	Improve their infants' physical development	3.58	.956	3.64	.620	-.517	198	.606
3	Improve their infants' cognitive development	3.54	1.004	3.12	1.031	2.572	197	.011
	Grand mean	3.68	.506	3.56	.507	1.551	197	.123

\bar{x} = Mean Responses; SD = Standard Deviation Responses

In Table 7, item-by-item independent sample t-test was conducted to test the influence of infants' gender on nursing mothers' reasons for re-breastfeeding them after refusal. The data show that there is no significance influence of gender on items 1 and 2. This is because their respective p – values (sig.) of -1.345 and .606 is greater than 0.05 while there is a significant influence of gender on item 3 because its p – value (sig.) of 0 .011 is less than 0.05. The group analysis showed that there is no significant influence of gender of the infants (male = 3.6; female = 3.56 $t(197) = 1.551$; $p = .123$) on reasons for their re-breast feeding by their nursing mothers after refusal to breast feed This is because p-value (sig.) is greater than 0.05 level of significance. There is therefore, no statistical significant influence of infants' gender on their nursing mothers' reasons for re-breastfeeding them hence the upholding of the null hypothesis.

Findings of the study showed that that all the infants had temporarily refused breastfeeding at the age of twelve months even though most of them (87.5%) did so within 3 months of birth of which 69% of them were first and second born child of their mothers. Majority of the mothers (61%) were below 25-29 years and 75% had secondary and tertiary levels of education while 87.5% of them lived in urban Nsukka area. The average household size of the nursing mothers was 4 persons with 89% of them earning monthly income of less than 120,000 Naira that amounted to living below global poverty line of two dollars a day. The bottom lines was that the infants and their literate mothers live in early stage of family life and were facing challenges of breastfeeding refusal amidst poverty. The findings are in agreement with Nomeh (2014) who found that HIV/AIDS infected nursing mothers in Anambra state were educated and in their young reproductive ages. Equally in agreement was the position of Onah et al. (2014) who stated that marital status, level of

education, maternal and infant's ages, household size, residency and income level influenced breastfeeding. The fact that the young and relatively inexperienced nursing mothers were able to get all their infants to re-breastfeed after refusal could be attributed to their high literacy level as earlier adduced by Onal et al. (2014). Again, the advice and help of close relative of the nursing mothers that usually comes around to offer services whenever new birth occurs in line with Igbo custom of Nsukka people may have contributed to successful re-breastfeeding experience.

The infants' attitudes that indicated their breastfeeding refusal as found by the study were: being restless when breastfed and crying while sucking breast. On the contrary, holding breast milk in their mouths and later spitting it off, taking long time to breast feed, coughing and sleeping when breasts were not among the infants' breast feeding refusal attitudes which are not consistent with the position of Carter (2019). The author noted that taking long time to feed, coughing, drooling and gagging are noticeable food feeding rejection practices among young children, which need to be checkmate by nursing mothers especially when such is the case among infants.

Approaches adopted by nursing mothers in re-breastfeeding their infants were identifying and dealing with improper sitting and breast positioning, distractions from the environment, unfriendly attitudes of the nursing mothers that were immediate causes of infants' breastfeeding refusal. Identifying and dealing with remote causes of; low breast milk flow, cold and nasal congestion in re-breastfeeding infants was found to be adopted approach with significant influence of educational qualification of nursing mothers on their adopted approaches. The findings were in consonance with the findings by Rakhshani and Mohammadi (2009) and Ugwunwa, Ede, Okeke, and Onuora (2021) who in their different studies found that mothers' educational level has significant relationship with managing breastfeeding and de-worming exercises in their child care practices respectively. High literacy level of the nursing mothers may have contributed in their ability to use appropriate problem solving skills implicit in their ability to identify and address both remote and immediate causes of their infants' breastfeeding refusal which agrees with the views of Picomoto (2016). Because right problem solving approaches were used, the infants' temporary breastfeeding refusal did not relapse into the more devastating permanent type.

The study found reasons for re-breastfeeding infants by nursing mothers were to; closely bond with their infants, enable their infants properly develop physical and intellectually with no statistical significant influence of infants' gender on nursing mothers' reasons. Again, reducing likelihood of occurrences of; pregnancy, ovarian cancer and other diseases, depression and gaining excessive weight were equally among the reasons for the nursing mothers' re-breastfeeding of their infants after initially refusing to breastfeed. The findings conceded to the attestations of WHO (2021), Bjarnadottir (2020), and UNICEF (2011a, b) that optimal breast feeding is beneficial to both infants and their nursing mothers and disagree with Lee and Marwell (2013) position that nursing mothers' reasons for re-breastfeeding their infants could have gender bias. Thus, all hands should be on deck in ensuring that the unknowing infants are not allowed to forgo optimal breast feeding unless on extreme maternal health challenges and or death.

The study had limitations of being carried out in urban section of Nsukka community in Southeastern Igbo tribe region of Nigeria. Most of the study samples were literate nursing mothers that understood the importance of attending antenatal and postnatal clinics hence the need to repeat the study targeting illiterate women in rural area of Nsukka.

4. Conclusion

It was concluded that all the infants temporarily refused breastfeeding by one year of age with some of them refusing by three months of age. Most of the nursing mothers were educated and in their twenties, and have an average household size of 4 persons. Equally revealed was that nursing mothers applied many approaches in getting their infants re-breastfeed with their level of educational playing a significant role. Infants' breastfeeding refusal show cased in their being restless and crying during breastfeeding which nursing mothers perceived would result to faltering of their infants' all round development with no significant difference on their gender. The study recommended that primary health care centres should expand their antenatal and postnatal awareness creation topical issues to include skills in holding and applying varied pressures on breasts in controlling milk flow during breastfeeding, including proper sitting positioning of themselves and their infants while breastfeeding. The study recommended further research on examination of the roles of visiting elderly women helpers to nursing mothers after child delivery, influence of educated mothers' occupational engagements in lifting households out of poverty in Nigeria, and skill improvement needs of nursing mothers in identifying, differentiating and addressing immediate and remote causes of their infants' breastfeeding refusal.

Acknowledgments

The authors acknowledge contributions of Dr Amos Nnaemeka the data analyst, Miss Ujunwa Nwakwuala, Miss Ezinne Nwamba, Miss Nwando Amahalu, and Mrs Blessing Onah who offered innumerable assistance in the course of the research work.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Conceptualization: CCA

Formal analysis: CAC, CCA

Funding acquisition: CCA

Investigation: EKO, CCA, CAC

Methodology: EKO, CCA, CAC

Writing – original draft, review & editing: EKO, CCA, CAC

Data availability Statement

The original contributions presented in the study are included in the article. Further inquiries can be directed to the first author.

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Publisher: Department of Home Economics and Hospitality Management Education, University of Nigeria, Nsukka 41001, Nigeria

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